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A void former for a waffle slab foundation

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(56) Related Art
US 4702048
US 4811770
US 4788809

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(57) Abstract

A void forming member (10) for use in the construction of a waffle slab foundation comprises a main body portion (18) and means (20, 22) for
5 supporting reinforcing meshwork (31) at an elevated location from an upper surface (24) of the main body portion (18) of the void forming member (10).
The meshwork supporting means (20, 22) is integrally formed with the upper surface (24) of the main body portion (18) of the void forming member (10) so that no relative movement of the meshwork supporting means (20, 22) to the
10 main body portion (18) of the void forming member (10) occurs during pouring of concrete in the construction of the waffle slab foundation.



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INVENTION TITLE: A VOID FORMER FOR A WAFFLE SLAB
FOUNDATION

DETAILS OF ASSOCIATED
PROVISIONAL APPLICATION NO(S): PQ 1718 - 19 July 1999 - Australia

**The following statement is a full description of this invention including the best
method of performing it known to me:-**

The present invention relates to building foundation systems and, in particular, to an element of formwork that can be used in the construction of a building foundation for a home or the like. More specifically, the present invention relates to a void former for use in the construction of a waffle slab foundation.

In recent years, it has become common home building practice to use a plurality of separate polystyrene pods or void forming elements to create a waffle slab foundation that provides a safe and cost effective alternative to more traditional foundations.

However, the polystyrene pods employed for this purpose pose a long term threat to the environment both as a result of leaching of the polystyrene into the surrounding environment and by the environmentally unfriendly polystyrene manufacturing and waste disposal processes.

Furthermore, the set up time for waffle slab foundations is considered a major contributor of labour costs. For instance, after the formwork border walls have been erected, flexible plastic sheeting is laid onto the ground within the border walls and the pods are laid in a desired grid pattern separated by spacers laid simultaneously so as to define the location of the ribs of the foundation. Bar chairs are then located within the channels between the pods, and steel rods are located on the bar chairs in the channels so as to reinforce the strength of the ribs to be formed within the channels after the pouring of concrete over the formwork. Bar chairs are also located on the pods and steel meshwork is then located on these bar chairs and over the entire formwork so as to provide the desired continuous strength throughout the slab when constructed. Only after all these steps have been carried out can concrete be poured over the formwork.

If the pouring is done carelessly or if the various elements of the formwork are not at their correct locations prior to pouring, the formwork may start to move from its desired position as a result of uneven pressures exerted upon it by the still fluid concrete during, or even after, pouring. It is not
 5 uncommon during the pouring of the concrete for the reinforcing rods and meshwork to collapse from their desired bar chair supported locations or for the pods to "float" free of their spacers to positions remote from their desired rib defining positions and so compromise the strength of the waffle slab foundation. These movements may be exacerbated by the smooth plastic
 10 sheeting upon which the pods and channel spacers are located.

The presence of so many different elements of formwork also adds to the cost of laying a waffle slab foundation, particularly as the plastic sheeting, pods, spacers, bar chairs, reinforcing rods and meshwork are not necessarily all from the same manufacturer or supplier.

15 It is an object of the present invention to provide a void former for use in the construction of a building foundation that combines some of the features of existing formwork elements used for constructing a waffle slab foundation.

It is another object of the present invention to provide a void former that is less hazardous to the environment than existing polystyrene pods.

20 It is yet another object of the invention to provide a void former that can be used to construct a building foundation more quickly and with less likelihood of concrete pour related disruptions of the formwork structure than existing systems.

It is still another object of the invention to overcome, or at least
 25 substantially ameliorate, the disadvantages and shortcomings of the prior art.

According to the invention, there is provided a void forming member for use in the construction of a waffle slab foundation, said void forming member

comprising a box-shaped, main body portion and means for supporting reinforcing meshwork at an elevated location from an upper surface of the main body portion of the void forming member, said meshwork supporting means being integrally formed with at least the said upper surface of the main body portion of the void forming member so that no relative movement of the meshwork supporting means to the main body portion of the void forming member occurs during pouring of concrete in the construction of the waffle slab foundation, wherein the meshwork supporting means comprises at least one elongated rib portion projecting upwardly from the said upper surface, and wherein the at least one elongated rib portion extends fully across the said upper surface.

In order that the invention may be readily understood and put into practical effect, reference will be made to the accompanying drawings, in which:-

Fig 1 is a perspective view of a void forming member according to a first embodiment of the present invention,

Fig 2 is a perspective view of a void forming member according to another embodiment of the present invention, and

Fig 3 is a perspective view of formwork produced by the location of four of the void forming members of Fig 2 supporting steel meshwork.

The void forming member 10 shown in Fig 1 is preferably fabricated of recycled plastic and has a main box-shaped body 18 and a pair of elongated rib portions 20, 22 which are integrally formed with the upper surface 24 of the body 18. The rib portions 20, 22 are adapted to support reinforcing steel meshwork at an elevated location from the upper surface 24 of the body 18. The body 18 may be suitably strengthened, say, by an internal frame structure



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or by corrugated walls, so as to prevent collapse or compression thereof during and after the pouring of concrete.

The void forming member 60 shown in Fig 2 is also preferably fabricated of recycled plastic and has a suitably strengthened, main box-shaped body 74 and a meshwork supporting, single elongated rib portion 76 which is integrally formed with the upper surface 77 of the body 74 and projects upwardly from the upper surface 77 of the body 74.

The formwork 87 shown in Fig 3 is produced by the location of four of the void forming members 60 separated by spacer brackets 78 so as to define a cruciform channel therebetween for creating an internal cross-rib of the waffle slab foundation when the concrete is poured.

The brackets 78 support a reinforcing rod 88 at an elevated location so that the rod may extend parallel to the longitudinal direction of the channel 26. The rib portions 76 support reinforcing steel meshwork 31 at an elevated location from the upper surfaces 77 of each of the bodies 74 of the members 60.

It is an advantage of the void forming member of the invention that it combines the features of a pod and bar chairs located on the pod for supporting reinforcing meshwork thereon, which would otherwise be utilized as separate elements of formwork in the construction of prior art waffle slab foundations.

Various modifications may be made in details of design and construction without departing from the scope or ambit of the invention. For instance, the void forming members 10, 60 may be assembled from a set of preformed panels that clip together in a predetermined manner with the use of suitable locking means.

THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

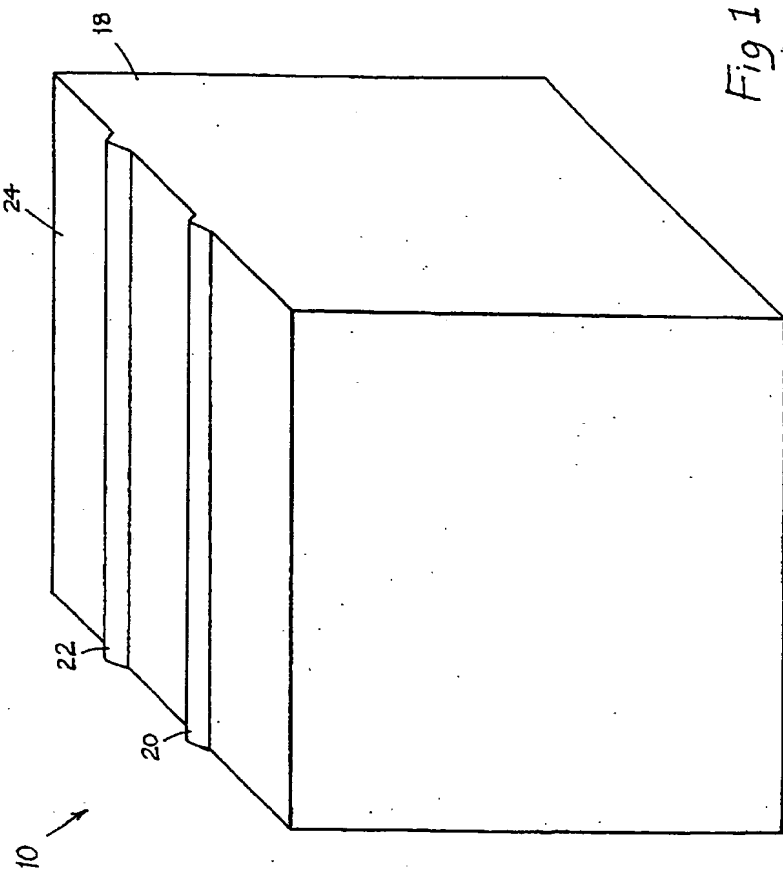
1. A void forming member for use in the construction of a waffle slab foundation, said void forming member comprising a box-shaped, main body portion and means for supporting reinforcing meshwork at an elevated location from an upper surface of the main body portion of the void forming member, said meshwork supporting means being integrally formed with at least the said upper surface of the main body portion of the void forming member so that no relative movement of the meshwork supporting means to the main body portion of the void forming member occurs during pouring of concrete in the construction of the waffle slab foundation, wherein the meshwork supporting means comprises at least one elongated rib portion projecting upwardly from the said upper surface, and wherein the at least one elongated rib portion extends fully across the said upper surface.
2. The void forming member of claim 1 wherein the meshwork supporting means comprise two parallel elongated rib portions.

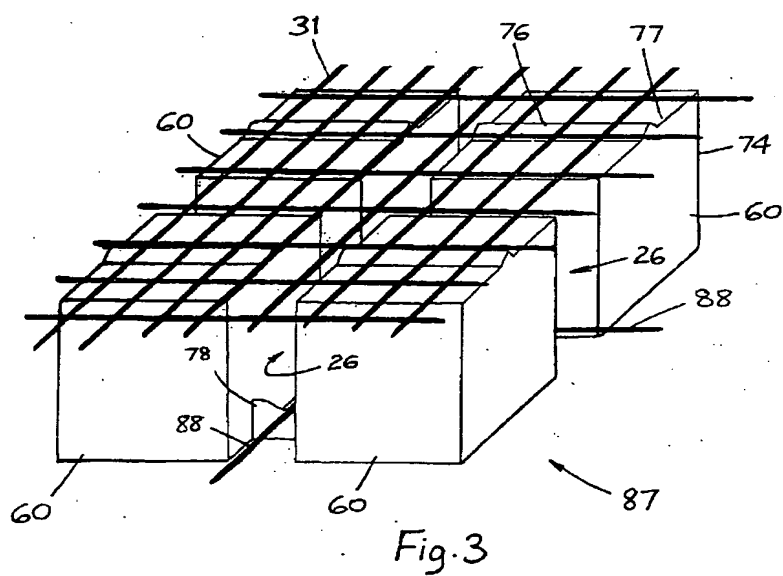
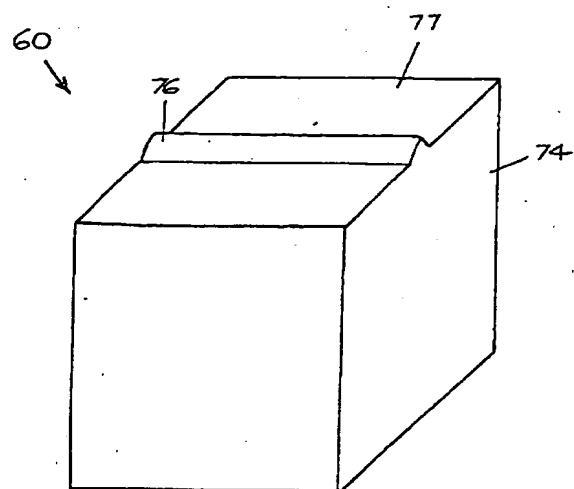
Dated this 12th day of October, 2000

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